



REPLACEMENT SHEET

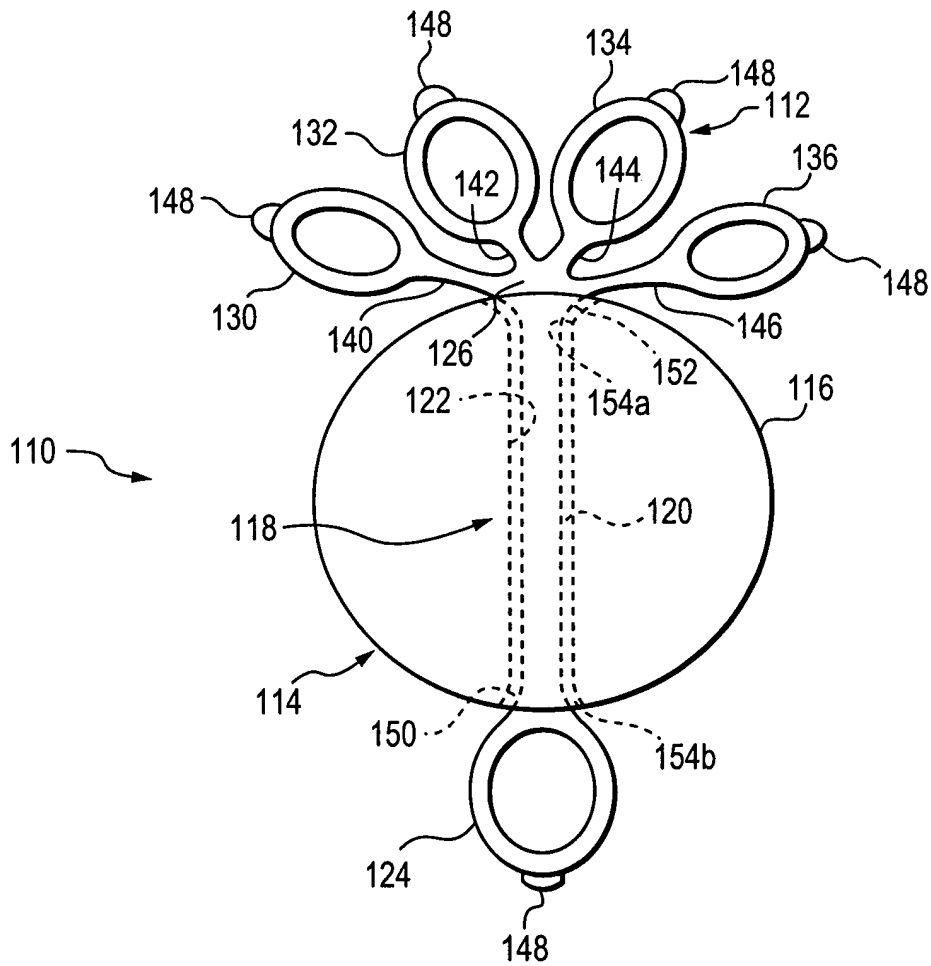


FIG. 1
PRIOR ART

REPLACEMENT SHEET

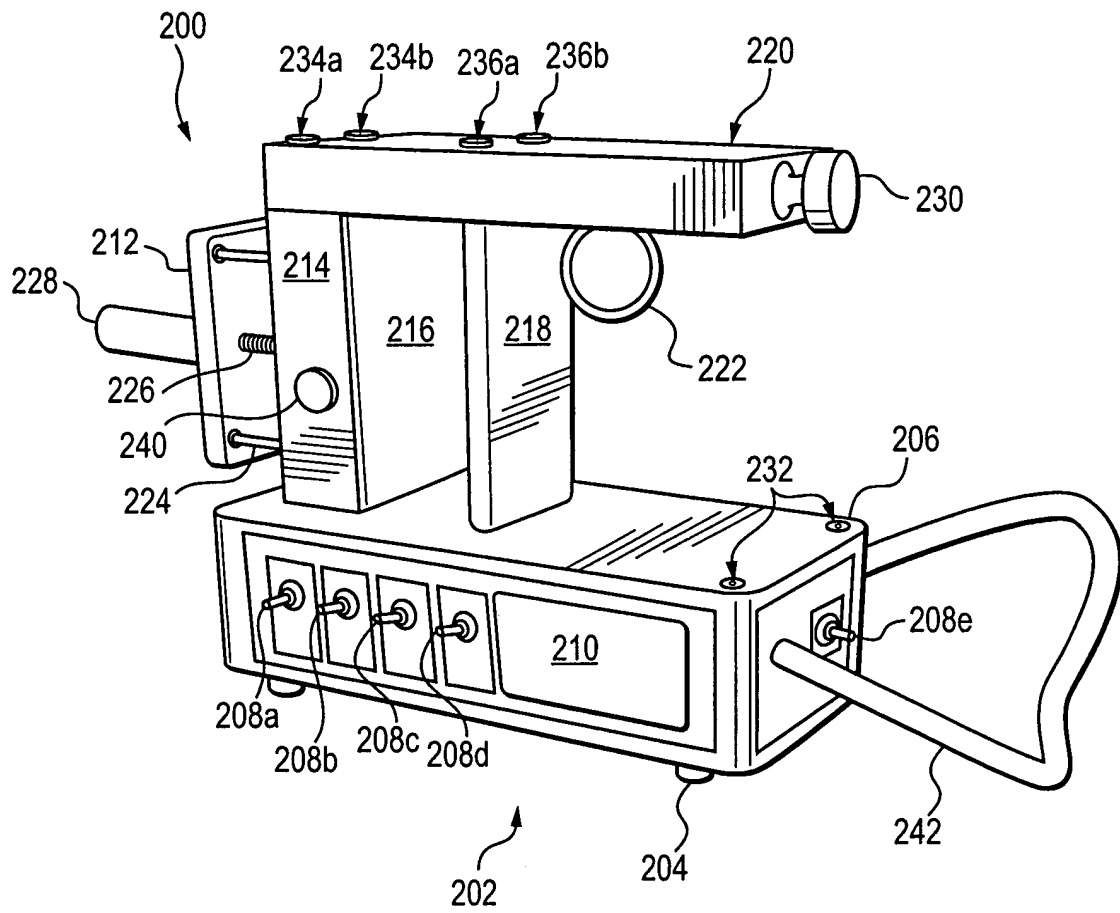


FIG. 2A

REPLACEMENT SHEET

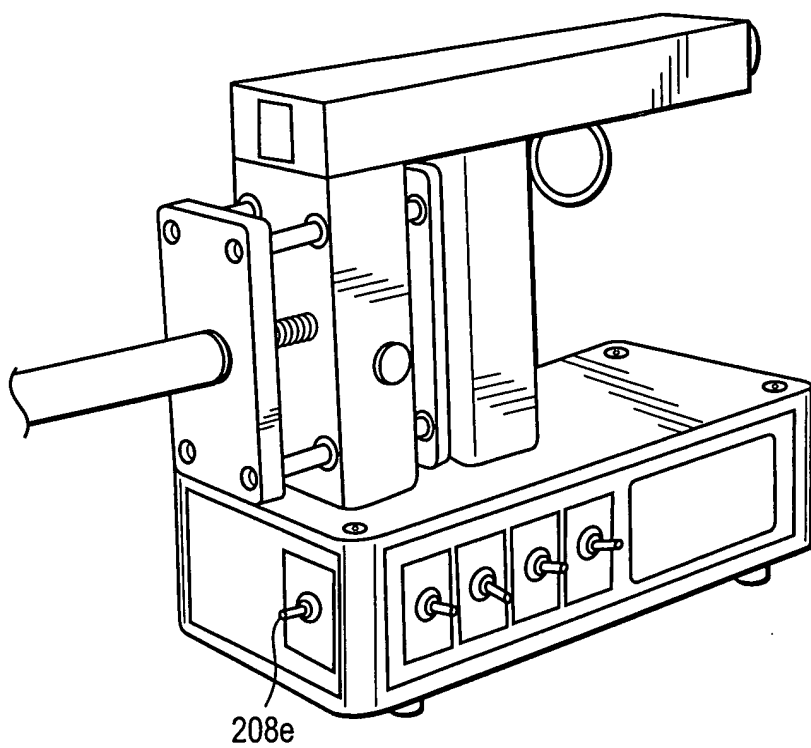


FIG. 2B

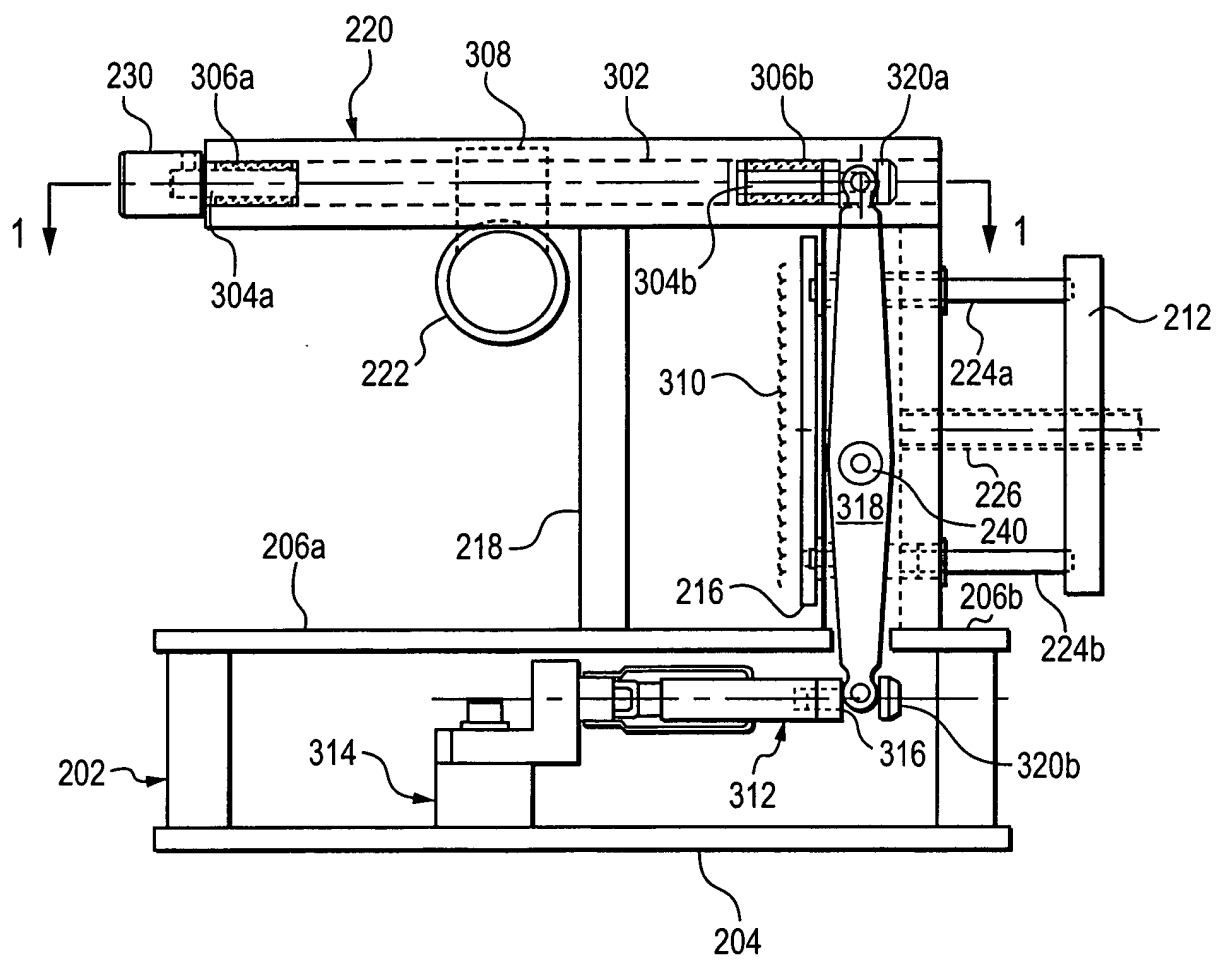


FIG. 3

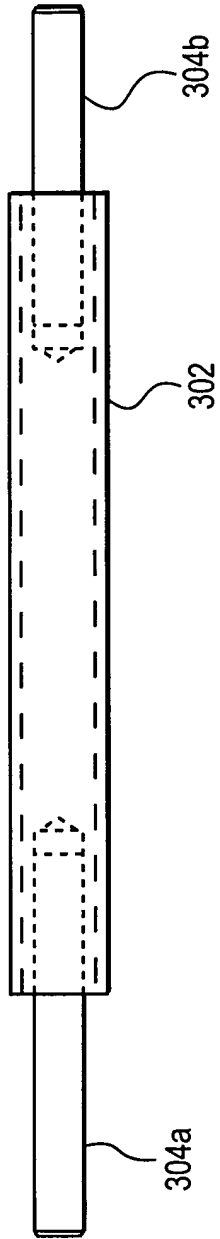


FIG. 4

REPLACEMENT SHEET

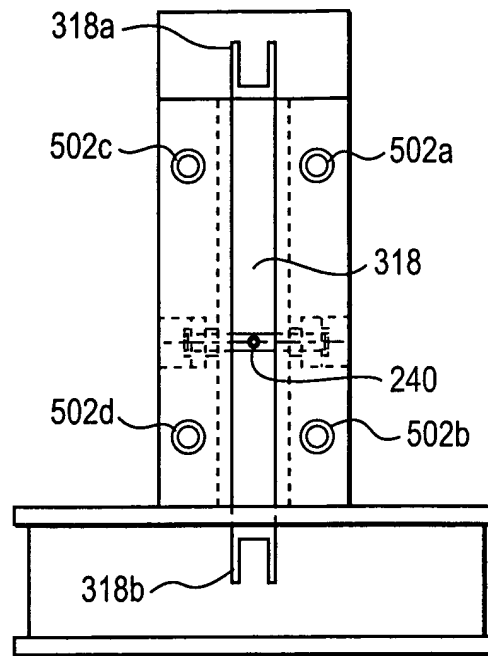


FIG. 5

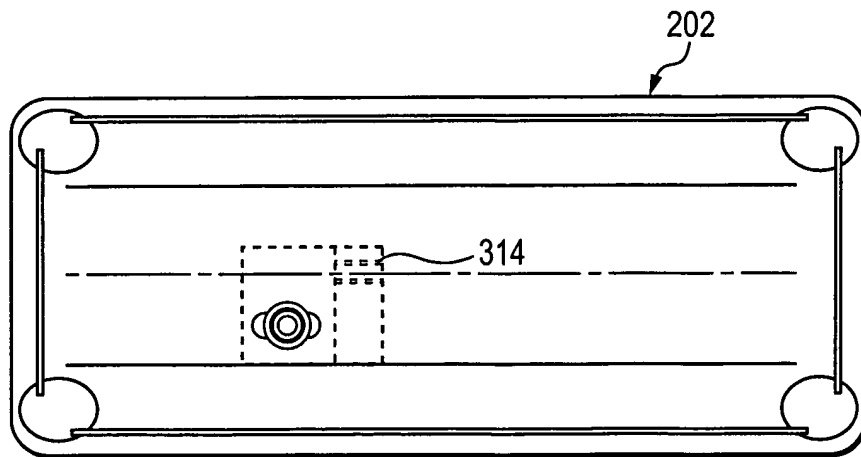


FIG. 6

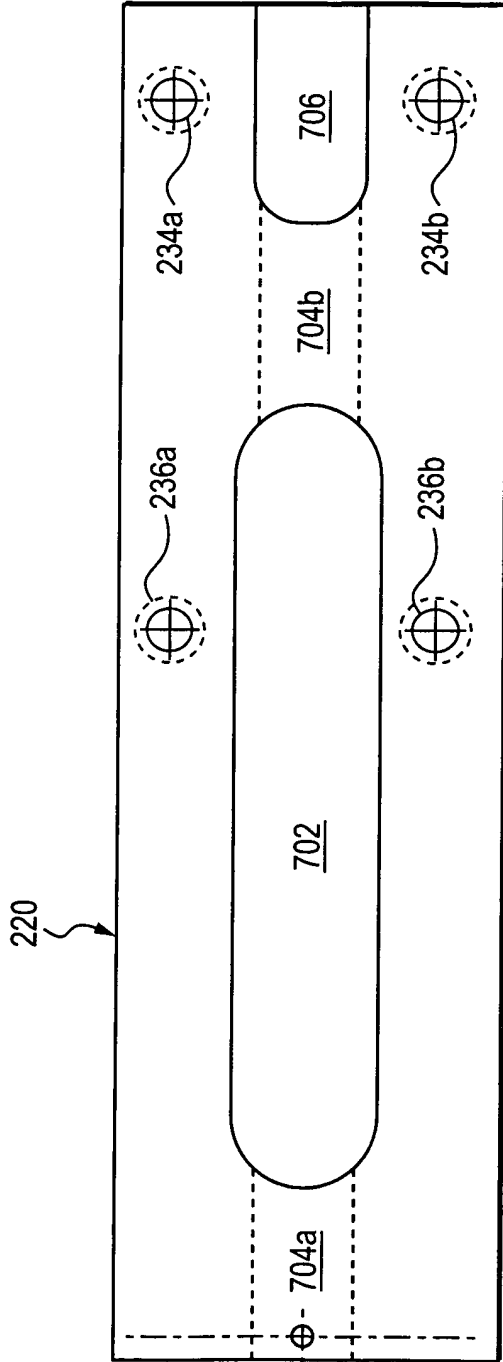


FIG. 7A

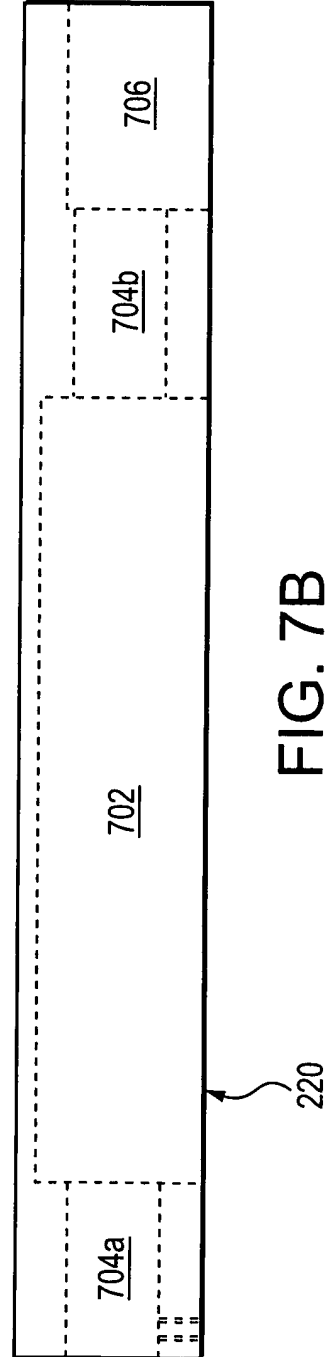


FIG. 7B

REPLACEMENT SHEET

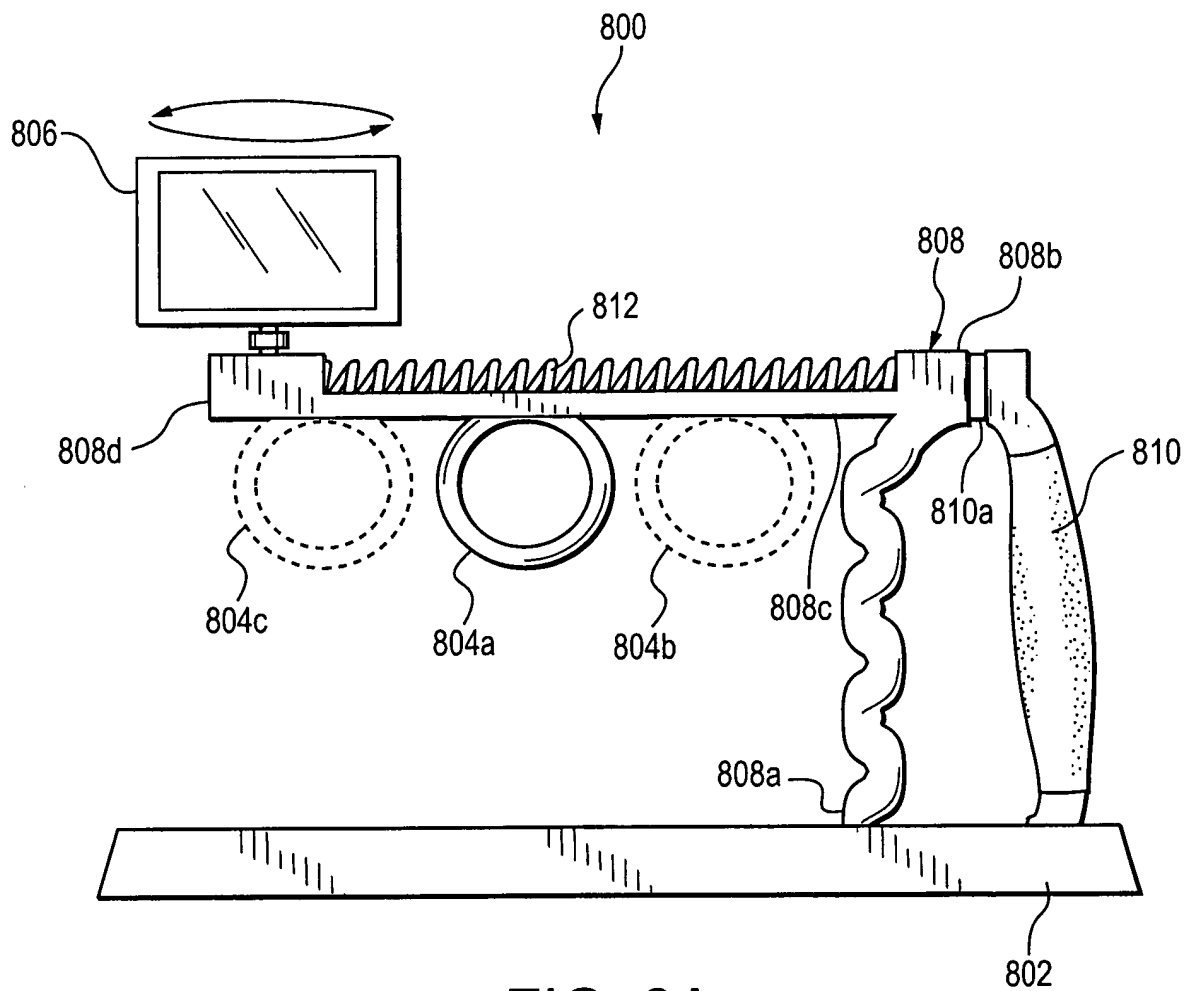


FIG. 8A

REPLACEMENT SHEET

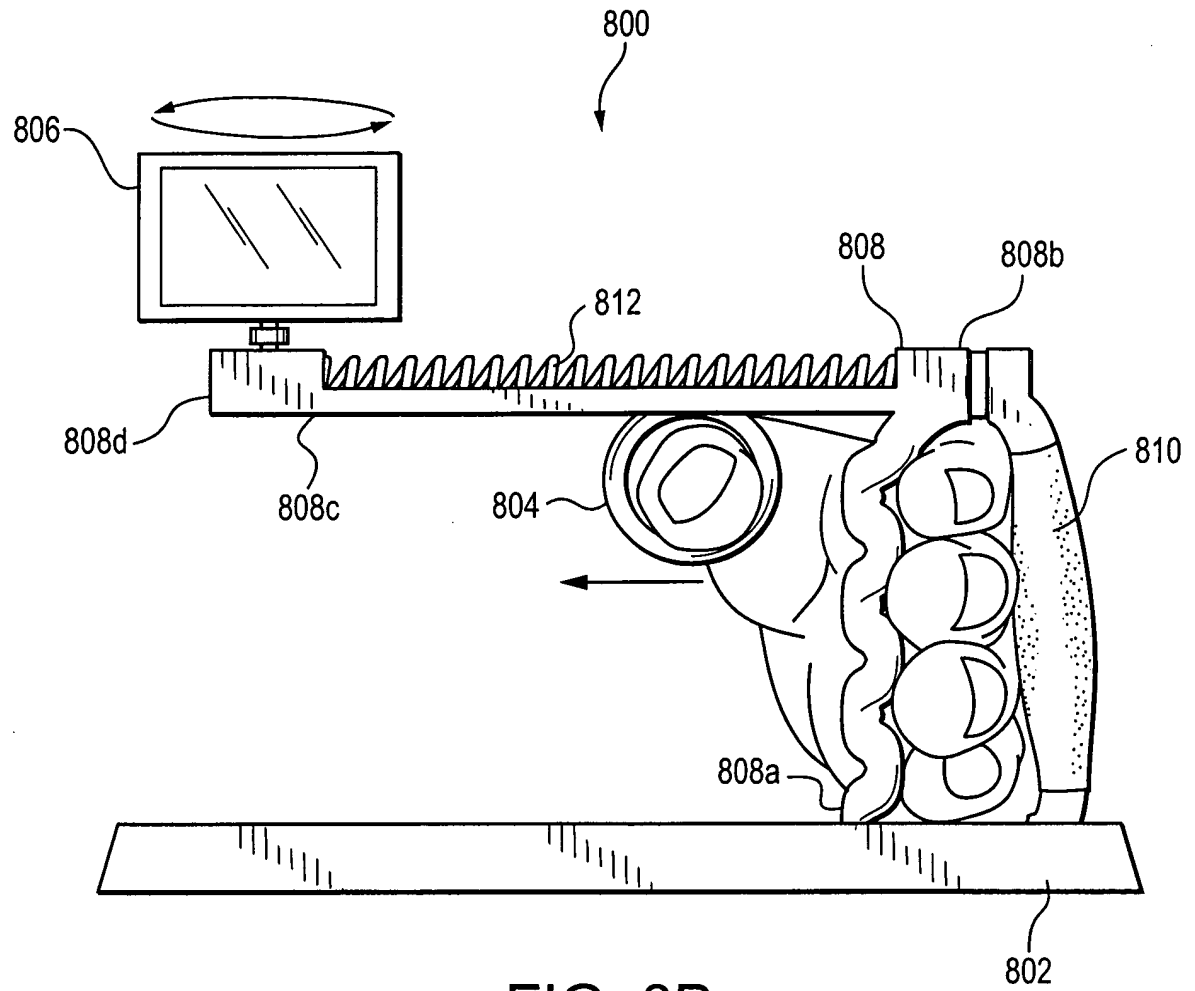


FIG. 8B

REPLACEMENT SHEET

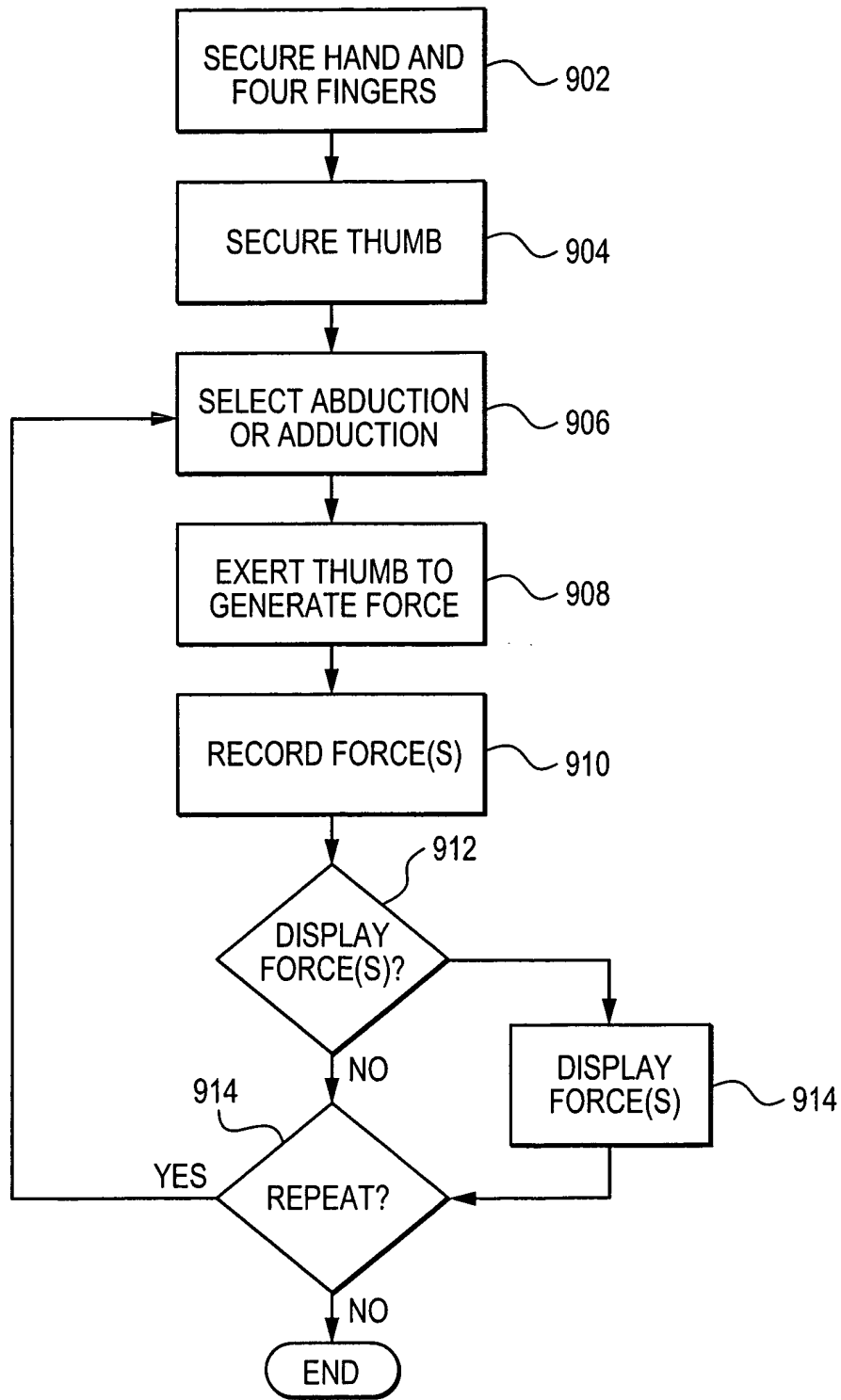


FIG. 9

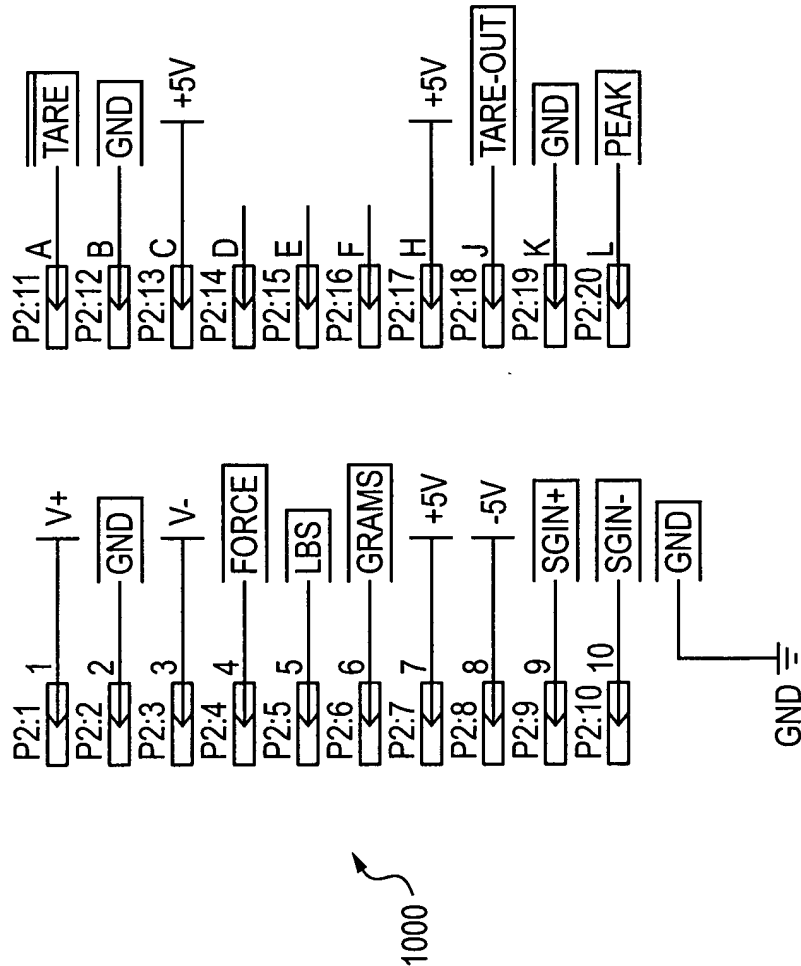


FIG. 10

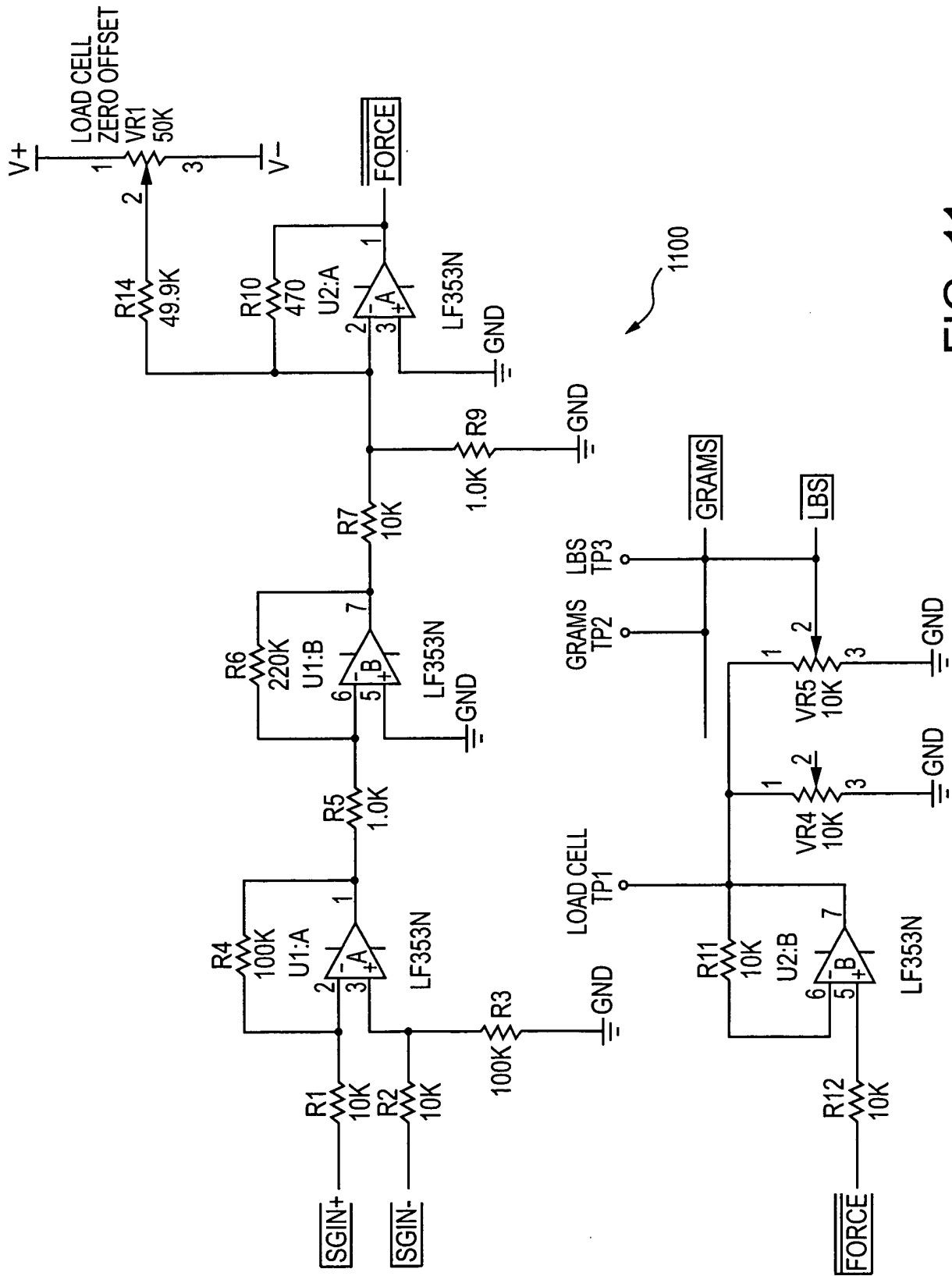


FIG. 11

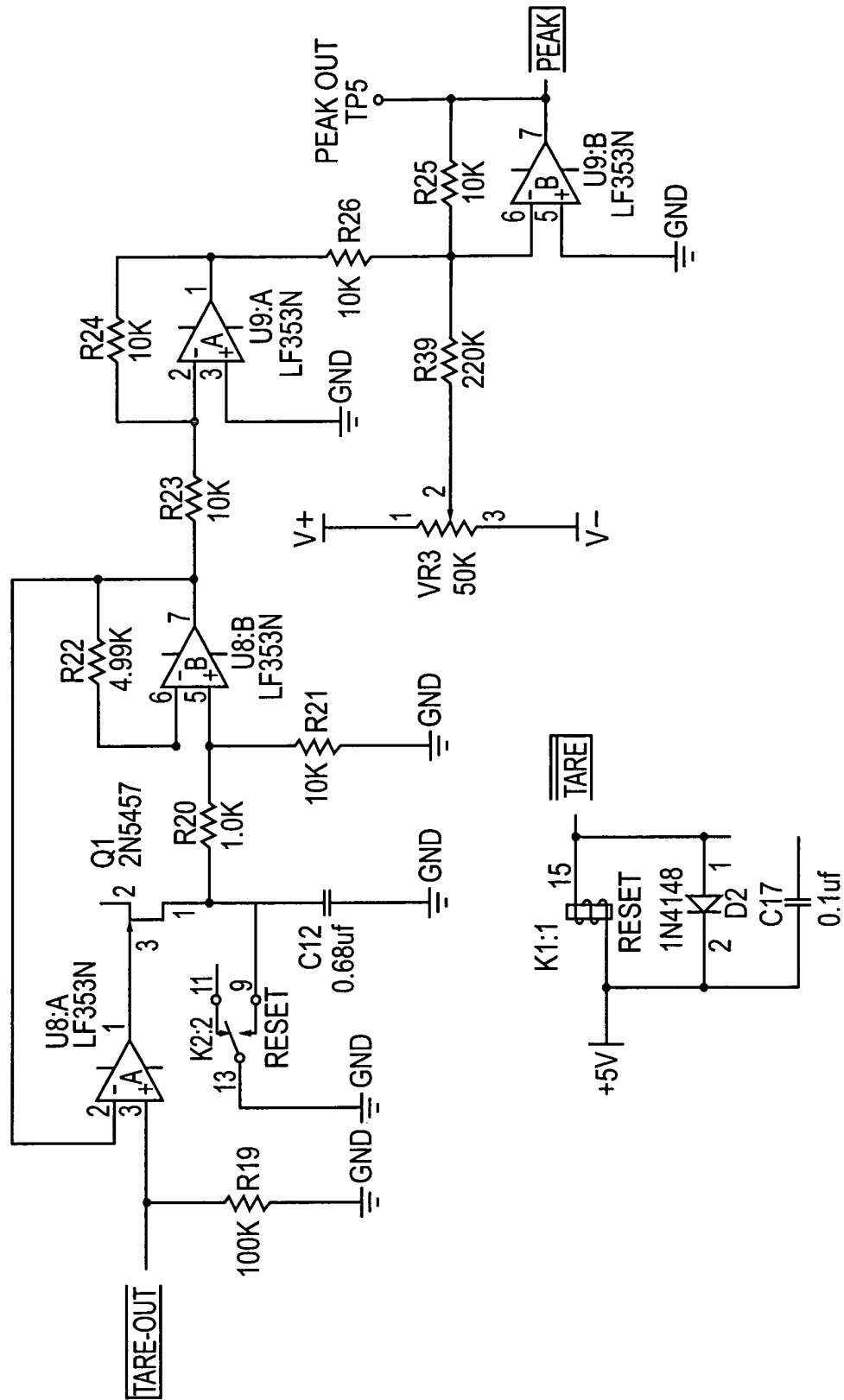


FIG. 12

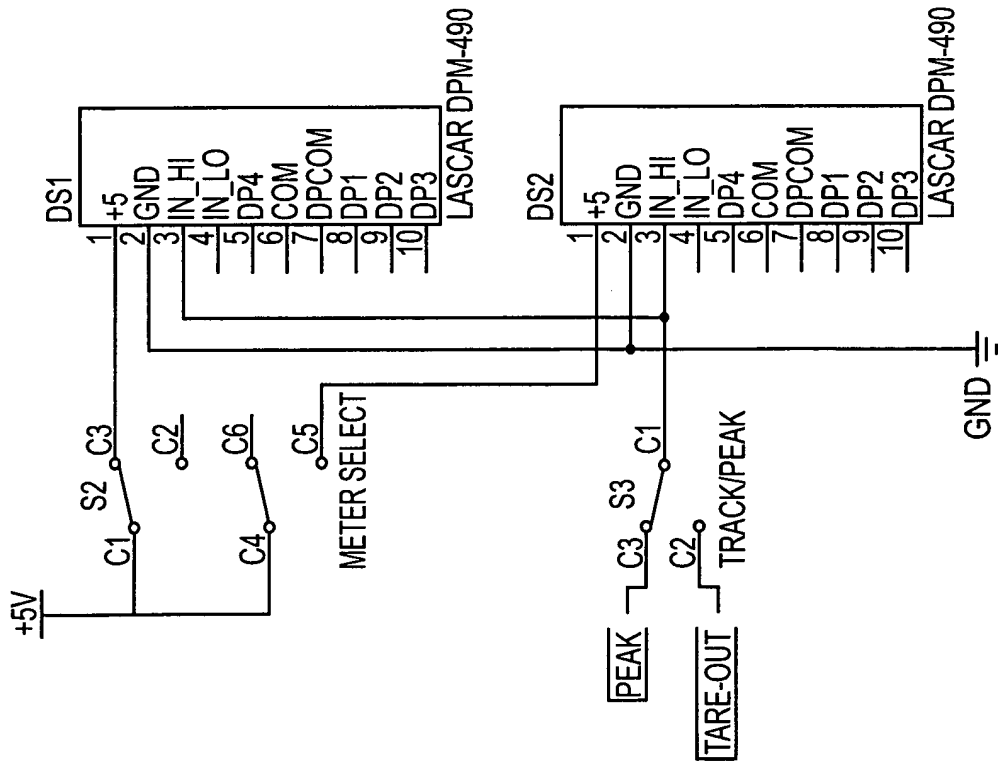


FIG. 13

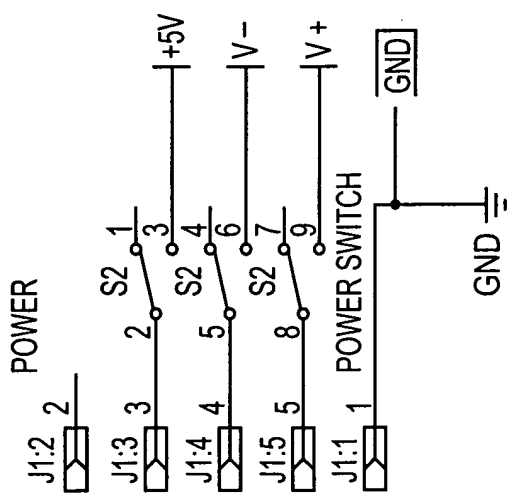


FIG. 14

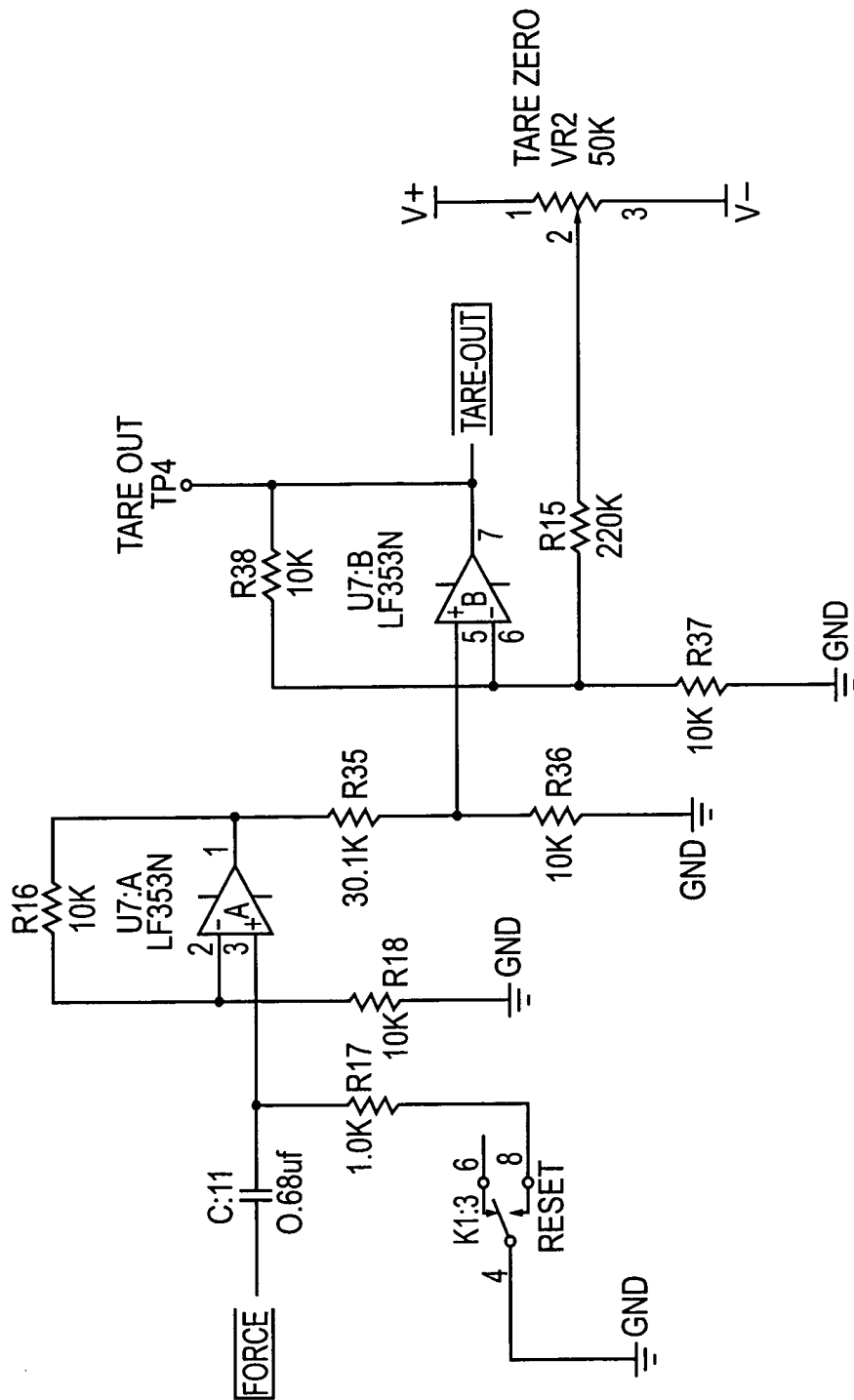


FIG. 15

REPLACEMENT SHEET

CHARACTERISTICS OF SUBJECTS-AGE, WEIGHT, SEX FOR RIGHT DOMINANT											
MALE-WEIGHT											
AGE	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	TOTAL		
5 TO 9											23
10 TO 14	2	12	9								22
15 TO 19			9	10	3						26
20 TO 24			3	16	5	2					24
25 TO 29			2	8	11	3					21
30 TO 34			2	6	11	1	1				25
35 TO 39			1	7	11	4	1				19
40 TO 44			1	3	9	3	3				25
45 TO 49			1	4	12	5	2	1			26
50 TO 54			1	2	12	7	3				20
55 TO 59			2	6	10	1	1				23
60 TO 64			3	7	9	3	1				21
65 TO 69			4	8	6	3					
TOTAL	2	12	38	77	99	32	12	3			275
FEMALE-WEIGHT											
AGE	50-99	100-124	125-149	150-174	175-199	200-224	225-249	TOTAL	GRAND TOTAL		
5 TO 9	2	2						4			4
10 TO 14	3	17	4	2				24			47
15 TO 19		8	13	3				23			45
20 TO 24		4	15	6	2			24			50
25 TO 29	1	8	8	4	1		1	25			49
30 TO 34			12	7	6			22			43
35 TO 39	1	8	10	8	4			31			56
40 TO 44			9	8	2	2		21			40
45 TO 49			8	15		1		24			49
50 TO 54			4	13	2	1		20			46
55 TO 59			11	6	3			20			40
60 TO 64			5	8	6		1	20			43
65 TO 69			5	9	7			21			42
TOTAL	5	45	104	81	33	4	3	275			

FIG. 16

REPLACEMENT SHEET

JOINT AGE WEIGHT ABDUCTION-RIGHT

AGE	JOINT AGE WEIGHT ABDUCTION-RIGHT MALE-WEIGHT								JOINT AGE WEIGHT ABDUCTION-RIGHT FEMALE-WEIGHT							
	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224		
5 TO 9																
10 TO 14		2.6	3.1						1.9	2.5	2.7					
15 TO 19			3.8	4.9	5.3					2.8	2.7					
20 TO 24			4.3	6.0	6.8					3.7	3.0	2.6				
25 TO 29				5.8	6.2	5.4				2.2	3.3	3.5				
30 TO 34				4.4	5.7						3.1	3.1	3.0			
35 TO 39				5.1	5.9	6.7				2.7	3.1	2.9	4.0			
40 TO 44				4.2	4.6	5.4	5.4				2.9	2.9				
45 TO 49				4.5	5.2	6.1					2.9	3.0				
50 TO 54					5.3	6.8	6.9				3.3	2.5				
55 TO 59				3.3	5.0						2.9	3.2	3.0			
60 TO 64			4.0	3.8	3.5	5.7					1.9	2.7	2.9			
65 TO 69			3.3	3.7	4.4	4.4					2.5	2.7	3.1			
	ANGLE=30°								ANGLE=30°							
5 TO 9																
10 TO 14		2.2	2.6						1.3	2.0	2.2					
15 TO 19			3.3	4.4	4.4					2.4	2.3					
20 TO 24			4.0	5.4	5.9					3.0	2.6	2.2				
25 TO 29				5.2	5.6	4.3				1.7	2.9	2.8				
30 TO 34				3.8	4.8						2.4	2.4	2.4			
35 TO 39				3.8	5.1	5.8				2.0	2.5	2.4	3.6			
40 TO 44				2.8	3.9	4.2	4.7				2.6	2.4				
45 TO 49				3.8	4.8	5.3					2.4	2.6				
50 TO 54					4.8	6.4	6.3				3.0	2.1				
55 TO 59				2.9	4.3						2.5	2.7	2.6			
60 TO 64			3.8	3.3	3.1	4.9					1.5	2.5	2.5			
65 TO 69			3.0	3.3	4.1	3.7					2.1	2.3	2.7			
	ANGLE=45°								ANGLE=45°							
5 TO 9																
10 TO 14		1.5	1.9						0.8	1.2	1.6					
15 TO 19			2.7	3.4	4.3					1.8	1.7					
20 TO 24			3.0	3.9	5.2					2.3	1.9	2.0				
25 TO 29				3.8	4.3	2.8				1.2	2.0	2.2				
30 TO 34				2.9	3.8						2.0	2.2	1.7			
35 TO 39				3.0	3.9	5.6				1.2	2.0	1.9	2.3			
40 TO 44				2.7	3.1	2.9	3.5				1.8	1.8				
45 TO 49				3.4	3.7	3.8					1.7	2.1				
50 TO 54					3.4	3.7	4.2				2.2	1.4				
55 TO 59				2.3	3.1						1.8	2.2	1.9			
60 TO 64			3.0	2.5	2.3	4.1					0.8	1.8	1.7			
65 TO 69			2.2	2.7	3.1	2.8					1.5	1.5	1.9			
			ANGLE=60°								ANGLE=60°					

FIG. 17

REPLACEMENT SHEET

JOINT AGE WEIGHT ABDUCTION-LEFT

AGE	JOINT AGE WEIGHT ABDUCTION-LEFT MALE-WEIGHT								JOINT AGE WEIGHT ABDUCTION-LEFT FEMALE-WEIGHT					
	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224
5 TO 9														
10 TO 14		2.3	2.7						1.6	2.4	2.6			
15 TO 19			3.4	4.7	5.5					2.6	2.4			
20 TO 24			3.9	5.0	6.5					3.2	2.5	2.3		
25 TO 29				5.5	5.7	8.4				2.2	2.7	2.9		
30 TO 34				3.8	5.4						2.6	3.0	2.2	
35 TO 39				4.5	5.5	6.0			2.3	2.7	2.9		3.9	
40 TO 44				3.2	4.3	5.1	4.3				2.2	2.6		
45 TO 49				4.5	4.7	5.5					2.6	2.6		
50 TO 54					4.6	5.8	6.0				1.9	2.2		
55 TO 59				3.3	4.0						2.3	2.7	3.0	
60 TO 64			3.5	3.3	3.0	5.0					1.7	2.3	2.5	
65 TO 69			3.0	3.2	3.5	4.1					1.9	2.3	3.0	
ANGLE=30°														
5 TO 9														
10 TO 14		2.0	2.1						1.3	2.0	2.5			
15 TO 19			2.5	4.2	4.3					2.5	2.0			
20 TO 24			3.4	4.3	4.6					2.2	2.2	1.7		
25 TO 29				4.9	5.1	5.4				1.7	2.6	2.6		
30 TO 34				3.1	4.5						2.4	2.7	2.0	
35 TO 39				3.9	4.8	5.4			2.0	2.5	2.0		3.2	
40 TO 44				2.7	3.5	4.2	4.0				1.8	1.9		
45 TO 49				3.2	4.0	4.7					2.2	2.3		
50 TO 54					4.1	4.8	5.5				2.0	2.0		
55 TO 59				2.8	3.8						2.0	2.3	2.6	
60 TO 64			3.1	3.0	2.4	4.4					1.2	2.0	2.0	
65 TO 69			2.6	2.8	3.0	3.4					1.5	2.0	2.5	
ANGLE=45°														
5 TO 9														
10 TO 14		1.4	1.6						0.9	1.2	1.6			
15 TO 19			2.3	3.2	3.5					2.0	1.5			
20 TO 24			2.9	3.3	3.7					1.8	1.5	1.2		
25 TO 29				3.6	4.2	3.2				1.1	1.9	1.9		
30 TO 34				2.6	3.9						1.7	1.8	1.7	
35 TO 39				2.7	3.5	4.8			1.2	1.8	1.4		2.7	
40 TO 44				2.0	2.9	3.1	3.1				1.2	1.6		
45 TO 49				3.2	2.8	3.5					1.6	1.7		
50 TO 54					3.0	3.8	4.4				1.5	1.5		
55 TO 59				2.0	2.9						1.5	1.5	1.9	
60 TO 64			2.8	2.3	1.8	3.5					0.8	1.5	1.5	
65 TO 69			1.7	2.2	2.1	2.7					1.2	1.4	1.9	
ANGLE=60°														

FIG. 18

REPLACEMENT SHEET

JOINT AGE WEIGHT ADDUCTION-RIGHT

AGE	JOINT AGE WEIGHT ADDUCTION-RIGHT MALE-WEIGHT								JOINT AGE WEIGHT ADDUCTION-RIGHT FEMALE-WEIGHT					
	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224
5 TO 9														
10 TO 14		11.8	12.8						10.9	10.7	11.9			
15 TO 19			14.3	16.2	16.4					11.0	13.5			
20 TO 24			15.2	17.4	18.5					13.2	14.4	14.0		
25 TO 29				17.8	19.7	20.8				10.8	15.2	16.0		
30 TO 34				17.4	17.4						12.9	16.4	16.2	
35 TO 39				18.5	16.9	19.2				12.0	14.1	14.4	12.2	
40 TO 44				17.1	16.0	20.9	18.0				13.7	12.9		
45 TO 49				15.3	17.1	18.2					12.0	14.8		
50 TO 54					16.5	17.3	15.6				13.1	13.8		
55 TO 59				14.3	16.1						13.5	16.2	15.6	
60 TO 64			12.9	13.8	12.4	16.3					12.0	13.0	13.3	
65 TO 69			12.6	13.4	15.5	13.1					11.0	12.3	14.1	
ANGLE=30°														
5 TO 9														
10 TO 14		11.9	13.3						11.9	11.3	12.8			
15 TO 19			15.9	18.0	18.6					12.7	15.0			
20 TO 24			18.0	18.4	20.7					14.9	15.1	15.2		
25 TO 29				19.1	21.3	20.9				11.6	16.6	17.8		
30 TO 34				19.4	18.8						14.2	17.4	17.2	
35 TO 39				20.7	18.4	19.2				12.6	14.9	15.7	15.4	
40 TO 44				17.5	16.2	19.9	20.4				14.5	13.7		
45 TO 49				16.9	19.1	19.4					13.4	16.1		
50 TO 54					18.2	18.9	16.9				15.7	15.1		
55 TO 59				14.6	17.5						15.1	16.9	17.5	
60 TO 64			12.4	15.6	13.6	17.1					11.9	14.9	14.7	
65 TO 69			13.5	14.6	16.5	15.4					12.7	12.8	15.1	
ANGLE=45°														
5 TO 9														
10 TO 14		13.2	14.2						12.5	13.2	14.2			
15 TO 19			17.5	19.3	19.1					13.4	16.0			
20 TO 24			20.3	20.5	21.7					15.8	16.7	14.9		
25 TO 29				21.2	22.2	22.1				12.3	18.4	18.9		
30 TO 34				20.3	20.9						15.0	19.3	15.7	
35 TO 39				21.8	20.3	20.3				14.1	17.1	17.1	14.4	
40 TO 44				20.7	18.1	22.1	21.2				16.8	14.6		
45 TO 49				18.5	20.5	21.1	19.0				14.4	16.4		
50 TO 54					20.3	21.1					15.5	15.8		
55 TO 59				15.4	18.8						15.7	17.6	17.9	
60 TO 64			14.2	16.1	15.2	19.1					12.7	15.6	15.8	
65 TO 69			14.8	15.8	17.6	16.4					13.2	14.3	16.0	
ANGLE=60°														

FIG. 19

REPLACEMENT SHEET

JOINT AGE WEIGHT ADDUCTION-LEFT

AGE	JOINT AGE WEIGHT ADDUCTION-LEFT MALE-WEIGHT								JOINT AGE WEIGHT ADDUCTION-LEFT FEMALE-WEIGHT							
	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224		
5 TO 9																
10 TO 14		10.8	12.5						10.1	10.2	12.4					
15 TO 19			13.9	16.3	19.0					11.5	12.4					
20 TO 24			15.0	16.7	17.0					12.7	13.4	12.7				
25 TO 29				17.2	18.9	14.4				12.1	13.9	14.6				
30 TO 34				17.3	16.8						12.1	15.6	16.0			
35 TO 39				19.5	16.5	17.8				12.2	13.2	14.4	13.2			
40 TO 44				14.5	15.7	18.9	17.9				12.3	12.2				
45 TO 49				15.6	17.3	17.9					10.5	14.0				
50 TO 54					17.2	16.3	15.3				12.7	12.7				
55 TO 59				12.4	15.4						13.1	14.4	13.5			
60 TO 64			11.5	13.5	11.6	16.2					11.1	12.7	12.8			
65 TO 69			12.9	13.3	14.3	14.7					11.0	11.8	12.9			
ANGLE=30°																
5 TO 9																
10 TO 14		12.1	13.4						11.3	10.2	12.9					
15 TO 19			15.8	18.1	20.9					10.8	13.4					
20 TO 24			16.3	18.3	19.8					13.7	14.4	14.1				
25 TO 29				18.7	21.0	20.6				11.9	15.2	17.2				
30 TO 34				17.0	18.1						13.8	16.9	18.4			
35 TO 39				20.7	18.8	18.2				12.0	14.6	16.5	13.7			
40 TO 44				14.2	15.8	18.5	17.8				12.5	12.1				
45 TO 49				15.7	17.8	18.3					11.1	15.1				
50 TO 54					18.5	17.3	16.6				15.1	13.5				
55 TO 59				13.6	17.6						14.7	14.5	15.8			
60 TO 64			11.2	15.1	13.2	16.5					12.1	13.9	15.1			
65 TO 69			13.3	14.4	16.0	16.8					12.6	13.2	14.3			
ANGLE=45°																
5 TO 9																
10 TO 14		12.4	14.5						11.6	10.8	13.8					
15 TO 19			17.1	19.2	20.3					11.6	15.4					
20 TO 24			17.7	20.7	20.9					14.7	15.7	14.9				
25 TO 29				20.1	22.3	21.8				11.8	16.5	18.3				
30 TO 34				18.6	19.7						13.9	18.4	16.8			
35 TO 39				21.3	20.2	20.3				12.8	15.2	15.7	14.3			
40 TO 44				16.1	17.3	21.0	19.0				13.6	13.2				
45 TO 49				17.4	20.2	20.9					12.8	16.3				
50 TO 54					20.1	20.1	18.4				16.0	14.6				
55 TO 59				15.3	19.2						16.0	16.4	18.7			
60 TO 64			11.4	15.6	14.4	18.7					13.3	15.8	16.5			
65 TO 69			14.2	15.1	17.9	17.2					13.6	14.4	15.0			
ANGLE=60°																

FIG. 20

GRIP STRENGTH BY AGE AND WEIGHT FOR MALE AND FEMALE LEFT AND RIGHT

MALE LEFT/RIGHT GRIP									
WEIGHT	50 TO 99	100 TO 124	125 TO 149	150 TO 174	175 TO 199	200 TO 224	225 TO 249	250 TO 300	
AGE									
10 TO 14		59/66	68/70	101/104	110/120				
15 TO 19			93/97	118/125	130/137				
20 TO 24			94/110	114/117	128/132	129/137			
25 TO 29				105/108	120/126				
30 TO 34			80/91	110/114	117/126				
35 TO 39				94/96	105/108	126/136	111/119		
40 TO 44				97/98	96/103	128/139			
45 TO 49					97/100	119/125			
50 TO 54					98/101	106/110	105/113		
55 TO 59				74/82	77/83				
60 TO 64			70/82	81/86	89/92	95/102			
65 TO 69			73/78	74/81		84/84			

FEMALE		LEFT/RIGHT GRIP							
WEIGHT	50 TO 99	100 TO 124	125 TO 149	150 TO 174	175 TO 199	200 TO 224	225 TO 249	250 TO 300	
AGE									
10 TO 14	56/56	63/59	74/70	82/82	79/75 81/80				
15 TO 19		66/60	77/71	80/74					
20 TO 24		84/78	78/71	83/77					
25 TO 29		58/51	81/74	81/84					
30 TO 34		66/61	72/64	80/73					
35 TO 39	79/72		71/69						
40 TO 44	65/62		75/72						
45 TO 49	68/64		65/61						
50 TO 54	66/65		72/70						
55 TO 59		69/64	70/68	77/73	71/66 75/69				
60 TO 64		58/54	69/65						
65 TO 69		66/59							

FIG. 21

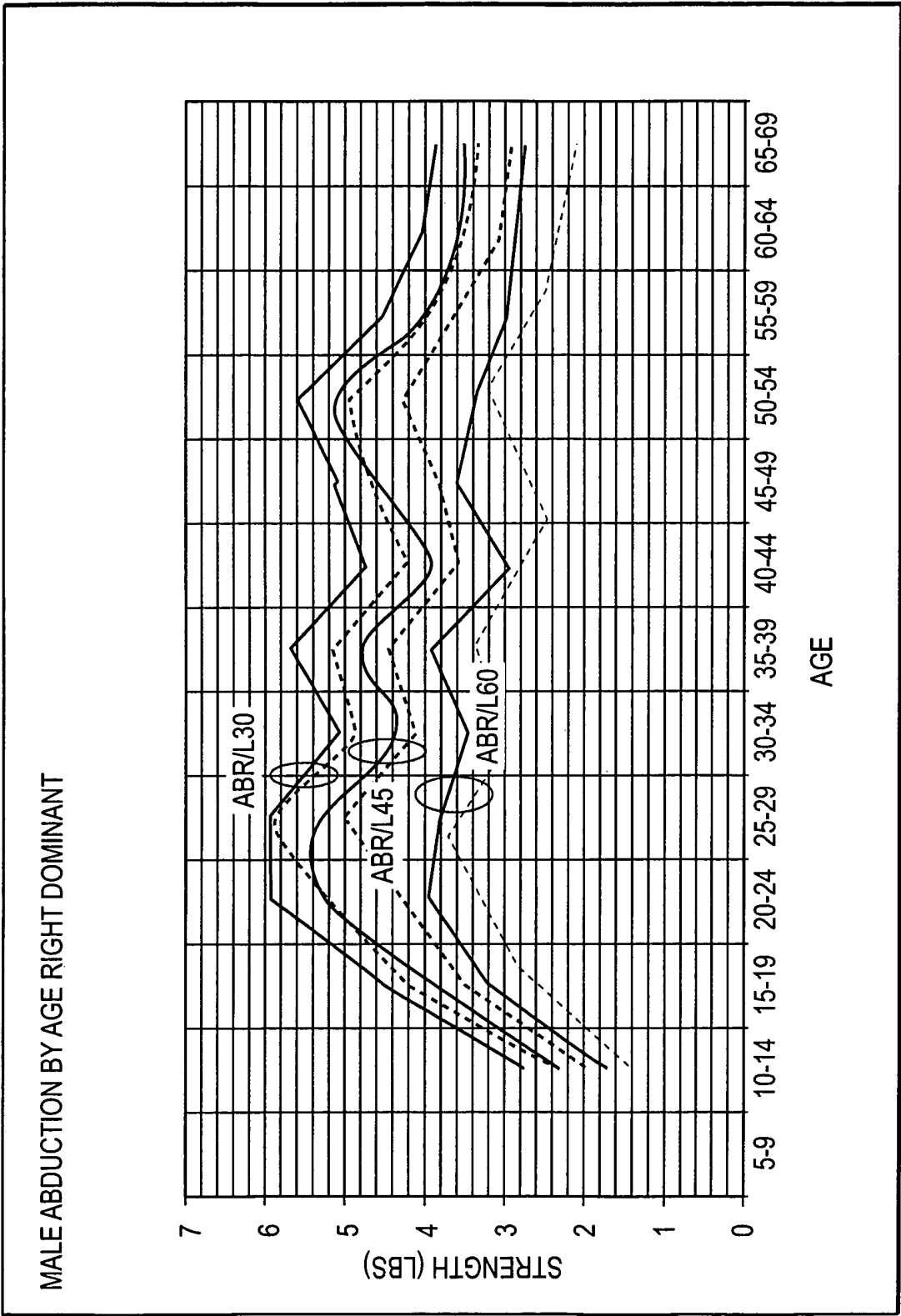


FIG. 22

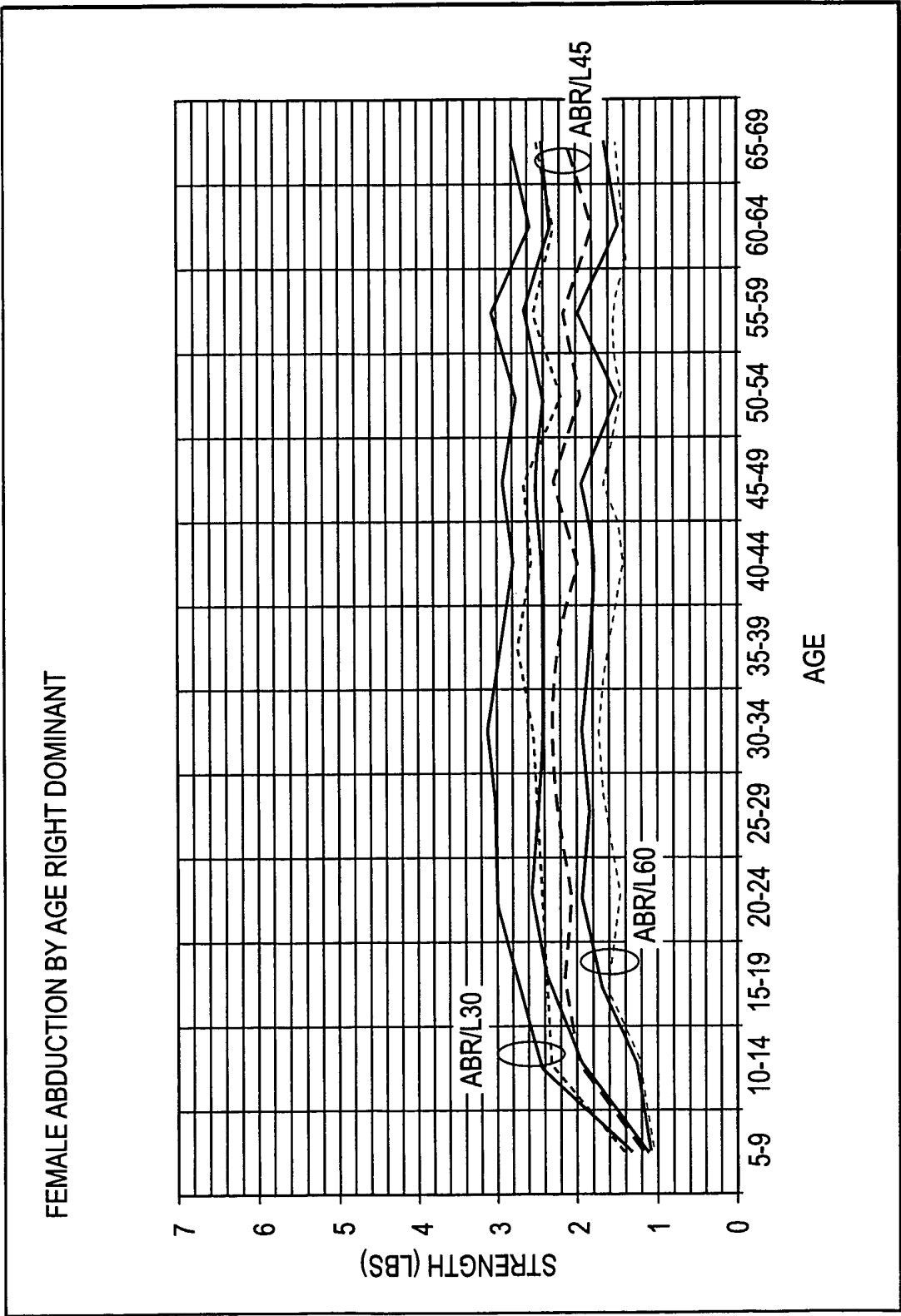


FIG. 23

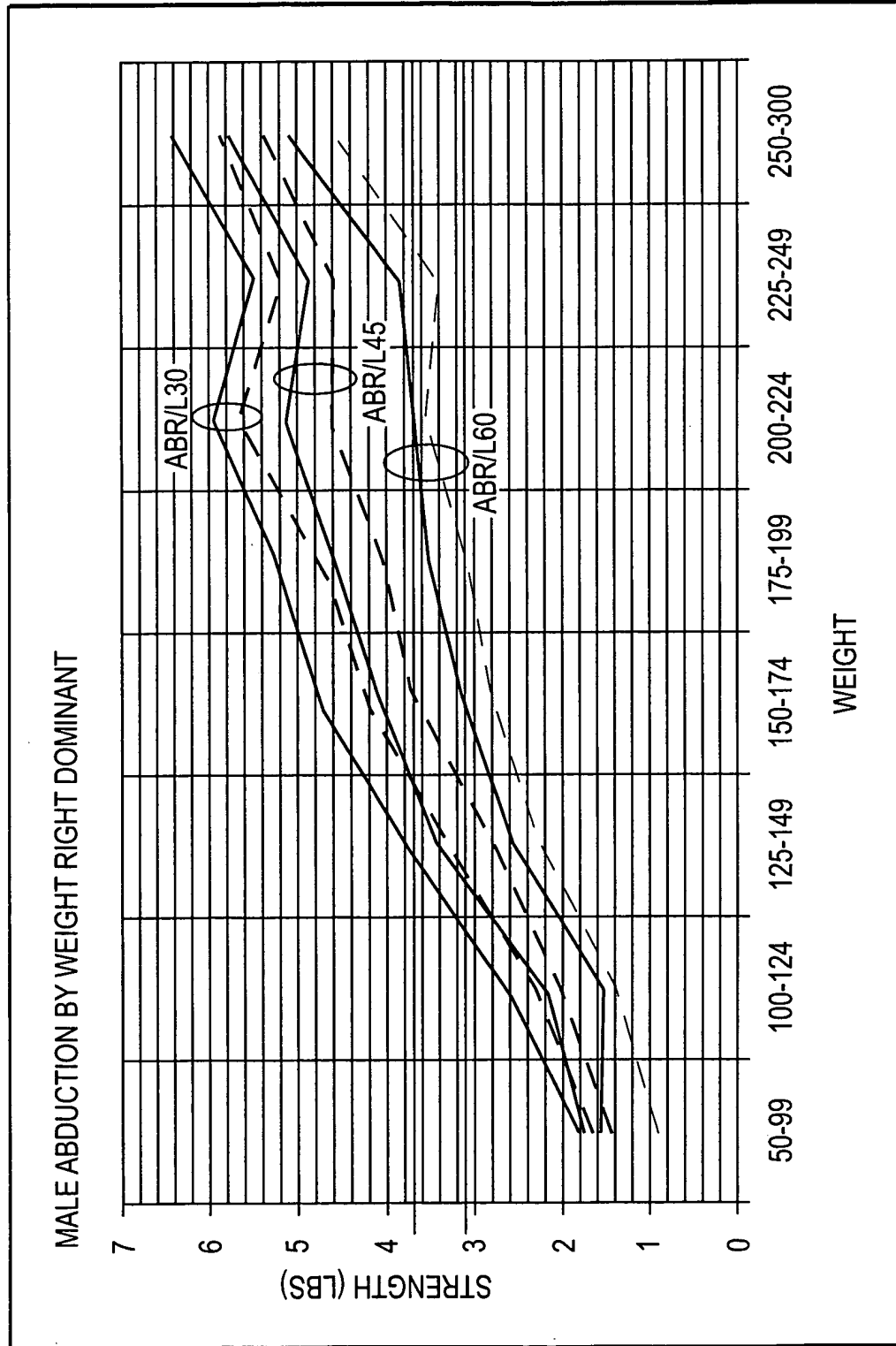


FIG. 24

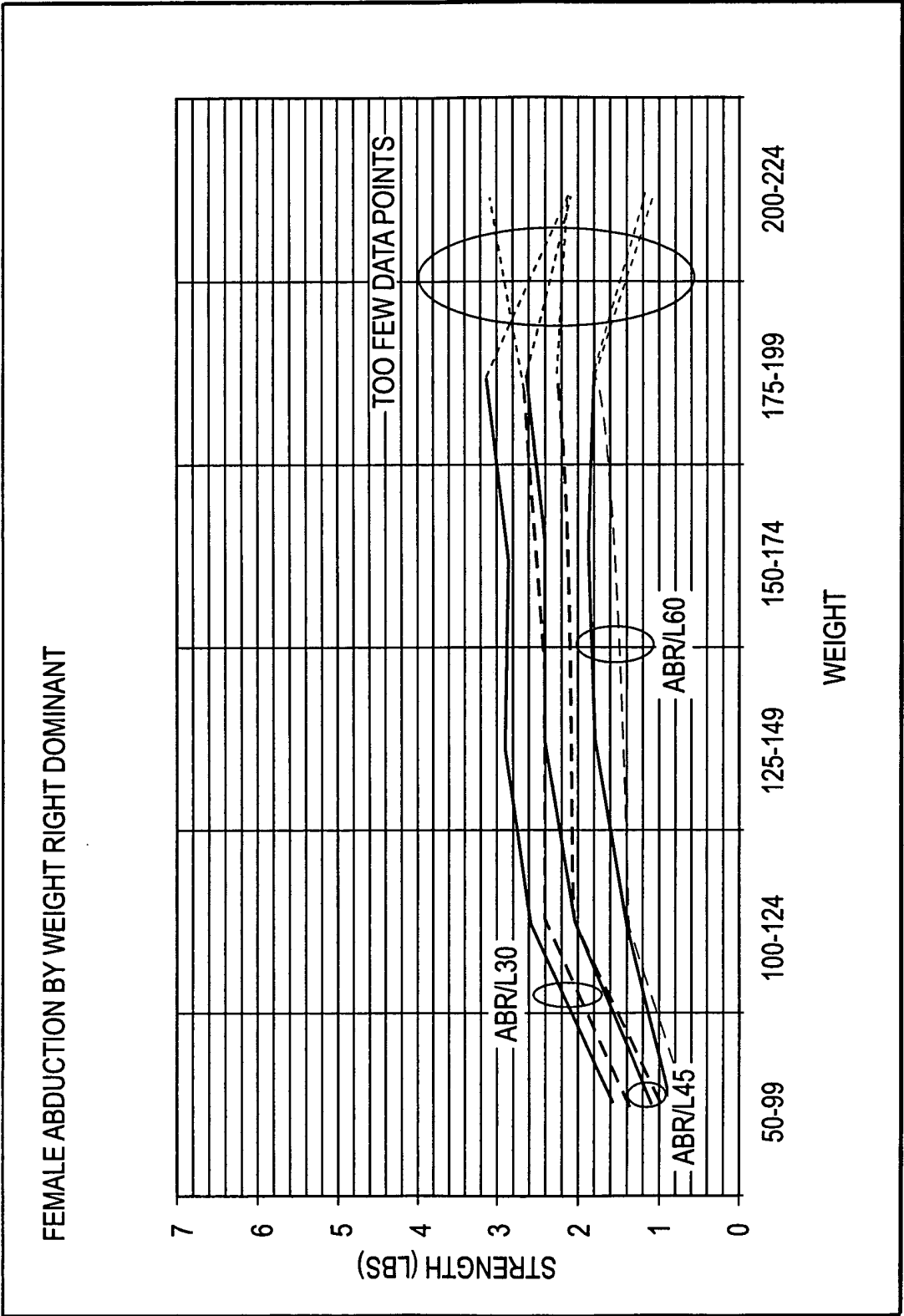


FIG. 25

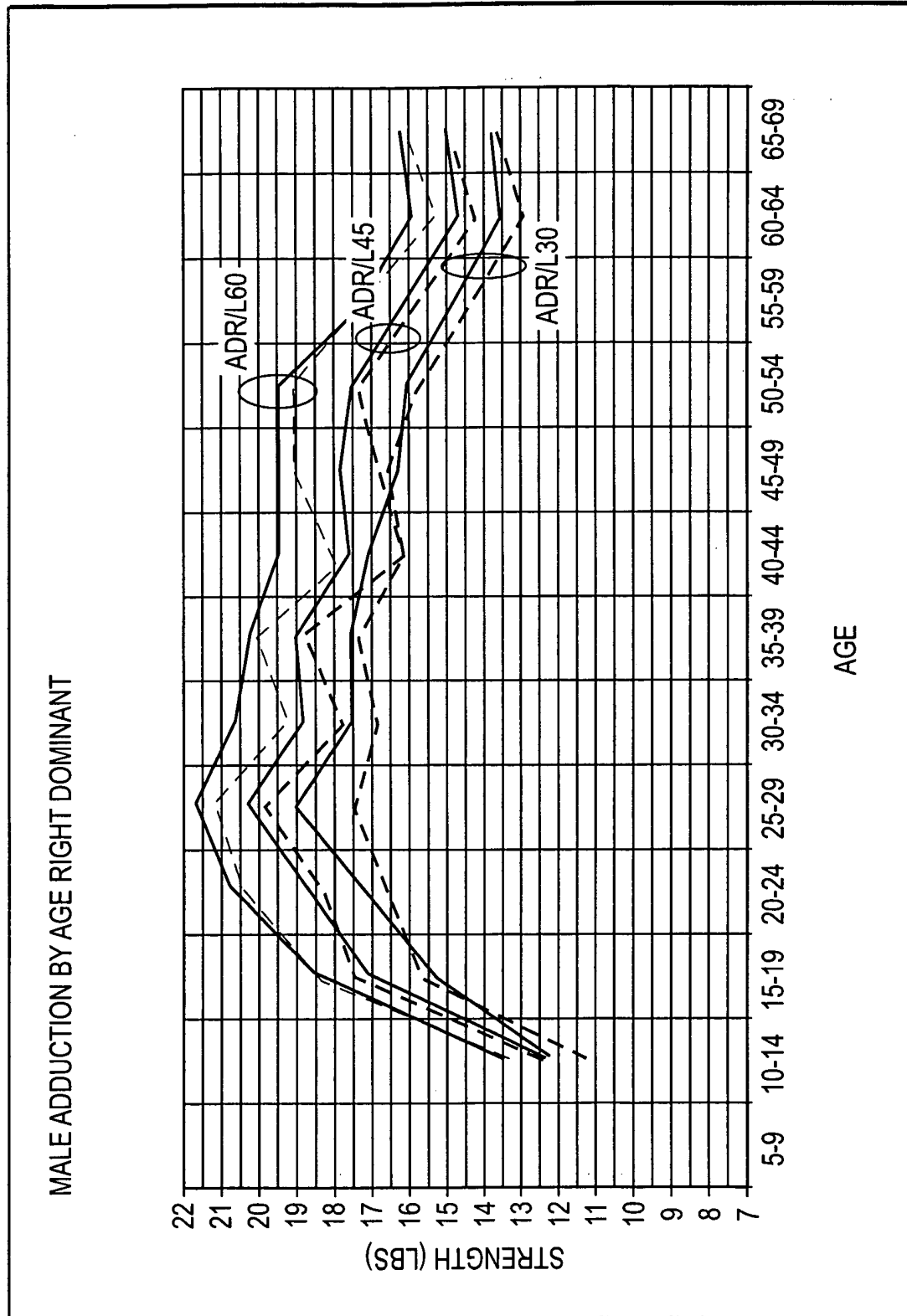


FIG. 26

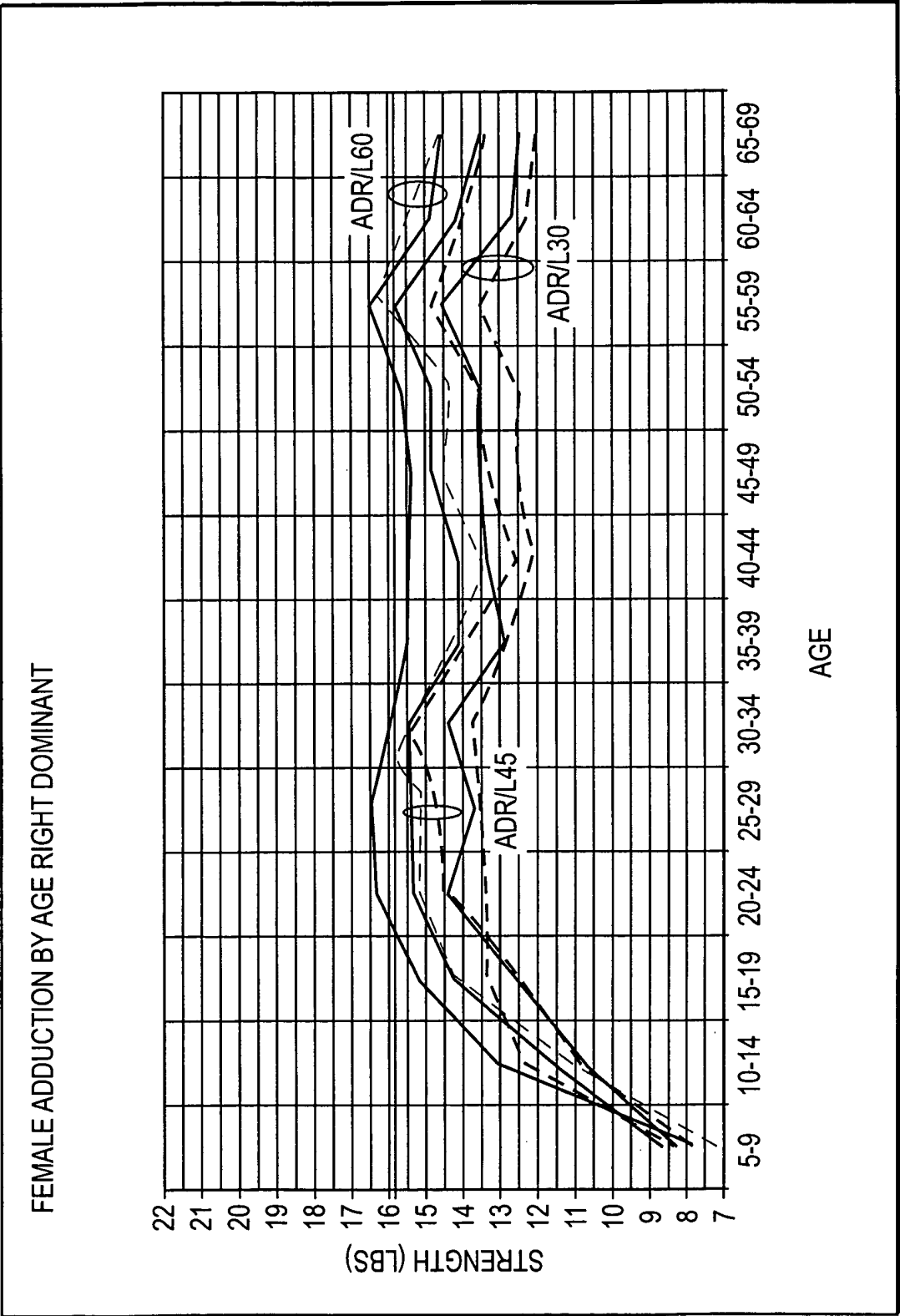


FIG. 27

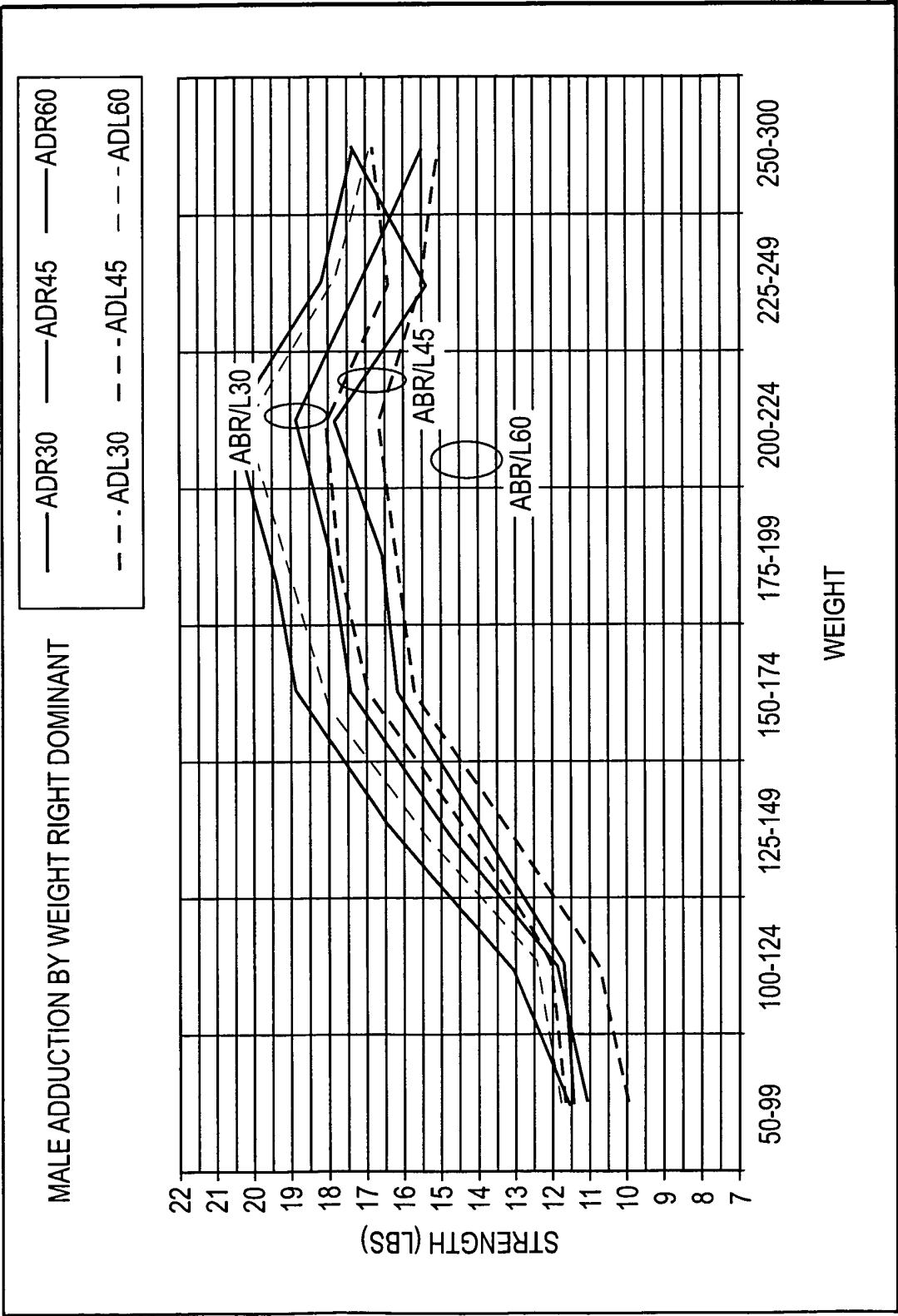


FIG. 28

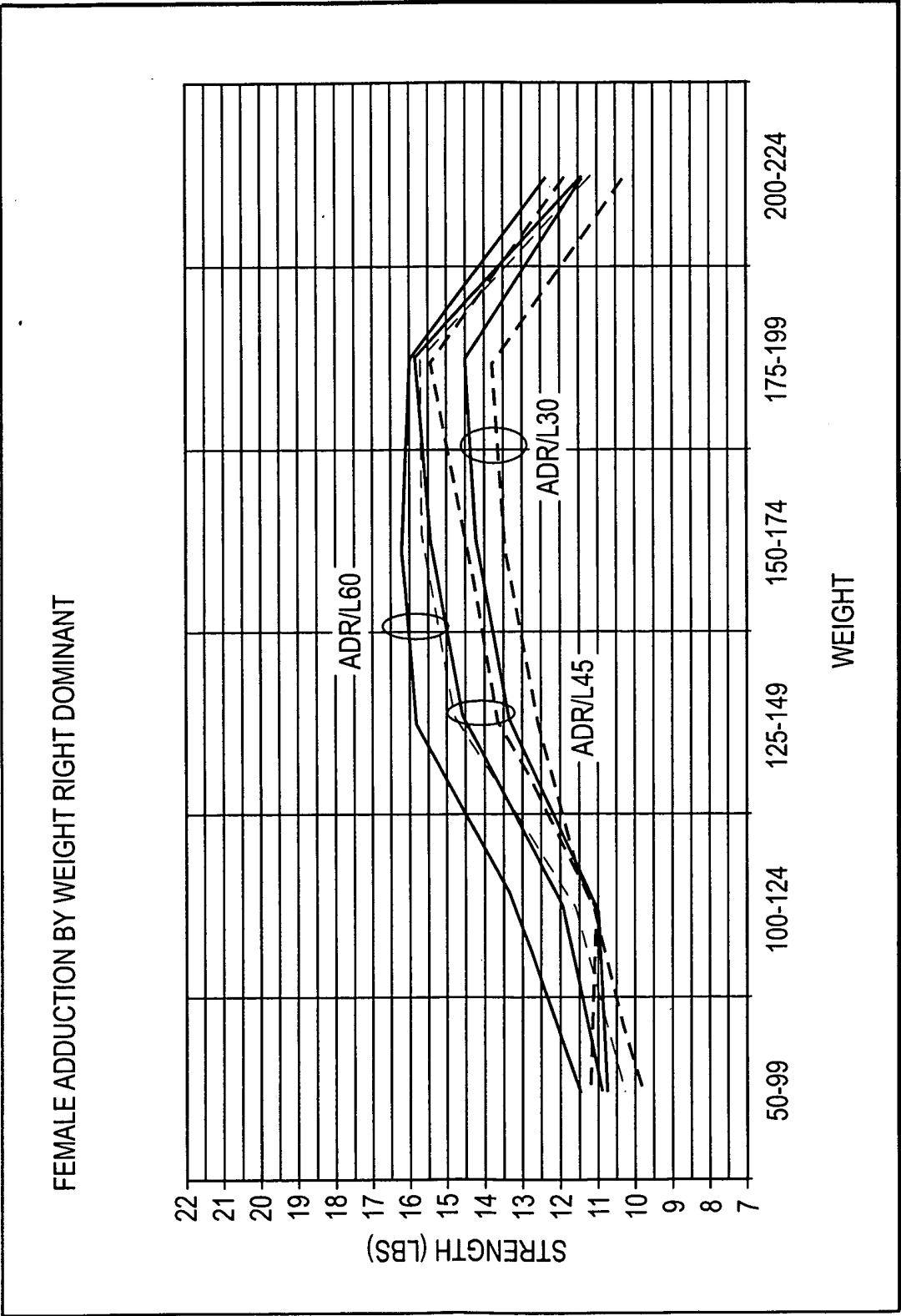


FIG. 29

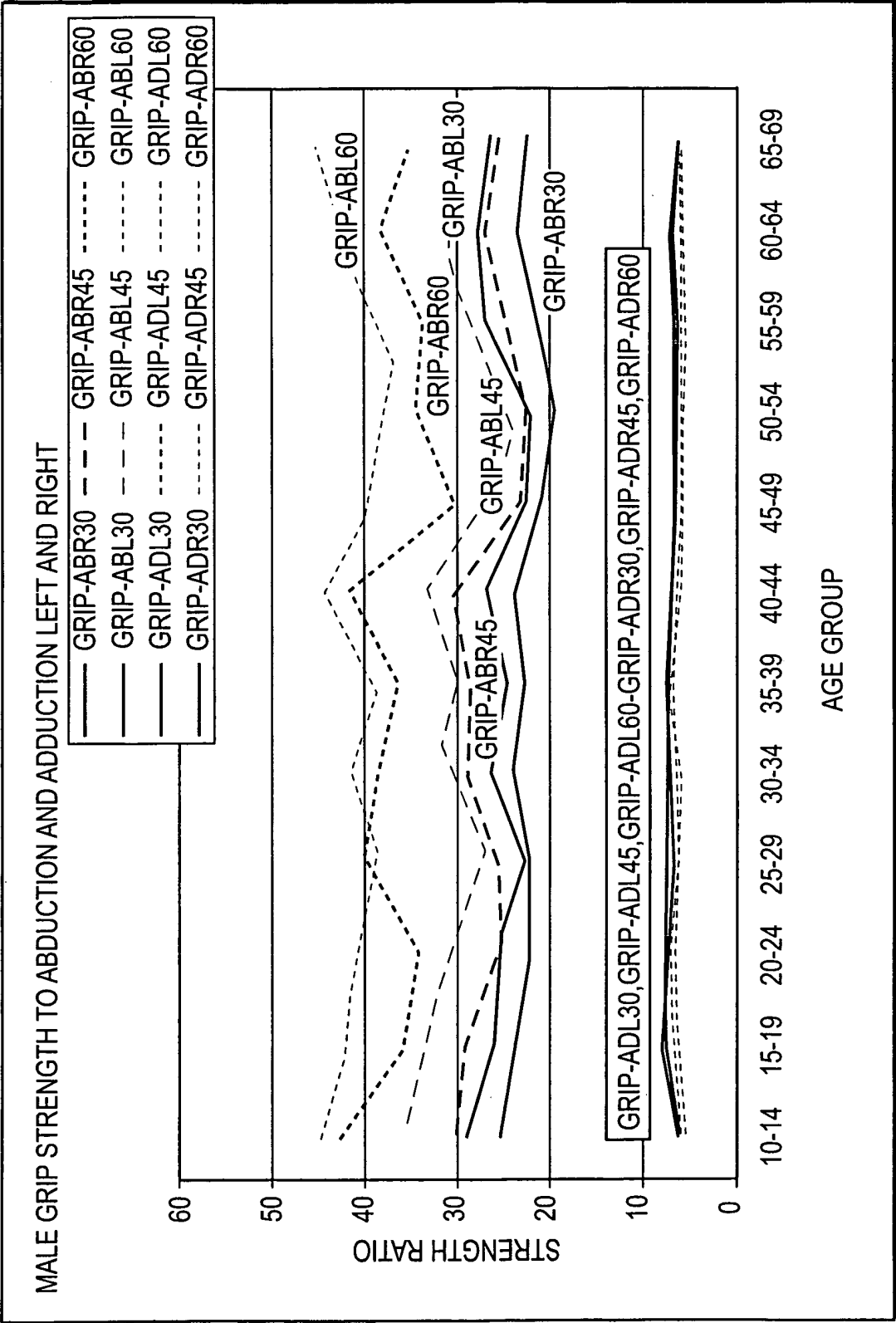


FIG. 30

CORRELATION COEFFICIENTS FOR ALL SUBJECTS																
MALES																
VARIABLES	WEIGHT	R-GRIP	L-GRIP	ABR30	ABR45	ABR60	ADR30	ADR45	ADR60	ABL30	ABL45	ABL60	ADL30	ADL45	ADL60	
AGE	0.41	-0.16	-0.16	-0.01	0.01	-0.02	-0.11	-0.08	-0.08	-0.07	-0.02	-0.03	-0.07	-0.11	-0.08	
WEIGHT		0.46	0.48	0.5	0.46	0.46	0.35	0.35	0.35	0.5	0.46	0.42	0.33	0.33	0.38	
R-GRIP				-0.75	0.67	0.64	0.74	-0.73	0.75	0.73	0.64	0.59	0.65	0.65	0.68	
L-GRIP				-0.77	0.69	0.64	0.73	-0.72	0.74	0.77	0.69	0.64	0.68	0.68	0.71	
ABR30					0.85	0.85	0.62	0.63	0.65	0.84	0.83	0.8	0.57	0.55	0.61	
ABR45						0.87	0.55	0.57	0.6	0.78	0.81	0.77	0.52	0.5	0.56	
ABR60							0.52	0.55	0.56	0.73	0.75	0.78	0.55	0.5	0.52	
ADR30									0.86	0.6	0.56	0.5	0.77	0.73	0.74	
ADR45										0.57	0.56	0.51	0.79	0.8	0.82	
ADR60										0.6	0.59	0.53	0.79	0.79	0.83	
ABL30											0.88	0.81	0.57	0.61	0.6	
ABL45												0.87	0.55	0.55	0.57	
ABL60													0.51	0.49	0.5	
ADL30														0.86	0.82	
ADL45																
FEMALES																
VARIABLES	WEIGHT	R-GRIP	L-GRIP	ABR30	ABR45	ABR60	ADR30	ADR45	ADR60	ABL30	ABL45	ABL60	ADL30	ADL45	ADL60	
AGE	0.52	-0.04	-0.01	0.01	0.07	0	0.07	0.08	0.07	0.03	0.01	0.02	0.06	0.13	0.19	
WEIGHT		0.35	0.37	0.23	0.26	0.2	0.28	0.32	0.29	0.21	0.17	0.22	0.26	0.33	0.31	
R-GRIP				0.58	0.55	0.51	0.56	0.62	0.62	0.42	0.4	0.39	0.49	0.52	0.55	
L-GRIP				0.49	0.45	0.41	0.53	0.58	0.57	0.49	0.46	0.41	0.56	0.58	0.58	
ABR30					0.83	0.73	0.41	0.42	0.48	0.67	0.58	0.56	0.37	0.35	0.38	
ABR45						0.81	0.35	0.38	0.43	0.56	0.56	0.57	0.31	0.31	0.34	
ABR60							0.32	0.32	0.36	0.51	0.51	0.57	0.3	0.31	0.34	
ADR30								0.88	0.85	0.32	0.3	0.23	0.79	0.74	0.71	
ADR45									0.88	0.3	0.31	0.26	0.74	0.75	0.74	
ADR60										0.36	0.35	0.26	0.72	0.72	0.74	
ABL30											0.82	0.63	0.4	0.4	0.4	
ABL45												0.77	0.39	0.38	0.41	
ABL60													0.3	0.29	0.31	
ADL30														0.88	0.8	
ADL45															0.88	

FIG. 31